29th IAA SYMPOSIUM ON SPACE AND SOCIETY (E5)
Is Space R&D Truly Fostering A Better World For Our Future? (2)

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SPIN-OFFS FROM SPACE TECHNOLOGY TO CULTURAL LIFE

Abstract

In this paper, we examine the space activities in Korea in erms of the spin-off effects of space technology on cultural life. Spin-offs of research results impact cultural life via technology transfer and commercialization in businesses. Compared to technology on earth, technology in space is characterized by the special conditions of usage such as zero gravity, vacuum state, high-strength radiation, high-temperature difference, demands for light weight and high reliability. In addition, minimal change in the design of systems, extremely frequent inspections and testing are needed. Since technology to be used in space is different, conventional technology already in use on the earth suffers from limitations when used in space. Comprehensive inspection of space devices and technology is required to secure high reliability in use. Due to these inherent high-quality characteristics, proven space technology is widely sought after and applied to other industrial areas. The first types of direct spin-off in which proven technology has spread to nongovernment sectors are cases such as gyro technology, structural analysis, heat resistant materials, and GPS car navigation. The next type of spin-off is RD driven, where the metaphysics was originally established in other areas, but subsequently intensive RD was done for the purpose of space development, with consequential spread to nongovernmental sectors. Examples include solar cells, fuel cells, and the reverse osmosis system. According to an actual survey of the current state of the aerospace industry by the Korean government, Korea Aerospace Industries, a mid-sized firm, is now making use of its technology of "on board computers(OBC)" obtained from the development of Arirang-2/KOMPSAT-2 by adopting it to the aircraft industry through on board computer data processing technology. The company Satrec Initiative is making use of satellite technology (such as low noise power units) by applying it to nuclear safety (such as environmental radiation detectors) through its nuclear use commercial program. The company KoSPACE is making use of satellite communication technology(such as M/W component design for satellite payloads) by applying to satellite terminals (such as Ku-band LNB and BUC). The Korea Aerospace Research Institute is trying to transfer and diffuse aerospace knowledge to the youth and general public by internally installing a new Exhibition Center, and is operating a diverse and fruitful program of study field trips. Externally, it organizes nationwide events on aerospace technology, and provides special lectures and exhibitions for the diffusion of technology and culture.